

LBL-33256A

ESG-220

Two Dimensional Simulations of the Relativistic Klystron and a Standing-Wave Free-Electron Laser Two-Beam Accelerator*, CHANGBIAO WANG and ANDREW SESSLER, LBL—Recent analysis of the Two-Beam Accelerator, by Wurtele, Whittum and Sessler¹ has shown that the transfer cavities, be it in the relativistic klystron version (RK/TBA) or in the standing-wave free-electron laser version (SWFEL/TBA), can be characterized by a simple coupling impedance. A two dimensional simulation program for studying relativistic klystrons has been developed by Robert Ryne and Simon Yu.² We have modified this code so that we are able to use it to conveniently study Two-Beam Accelerators of both the RK/TBA and the SWFEL/TBA variety. Results for a variety of configurations, and a range of parameters, will be presented.

*Supported by the Director, Office of Energy Research, Office of High Energy and Nuclear Physics, Division of High Energy Physics, of the U.S. Department of Energy under Contract No. DE-AC03-76SF00098..

¹J.S. Wurtele, D. Whittum, and A.M. Sessler, "Impedance-Based Analysis of the Relativistic Klystron and the Standing-Wave Free-Electron Laser Two-Beam Accelerator", submitted for publication in the Proceedings of the XVth International Conference on High Energy Accelerators, Hamburg, July, 1992.

²R. D. Ryne and S.S. Yu, "Relativistic Klystron Simulations Using RKTW2D", Proceedings of the 1990 Linac Conference, Los Alamos National Laboratory LA-12004-C (1991).